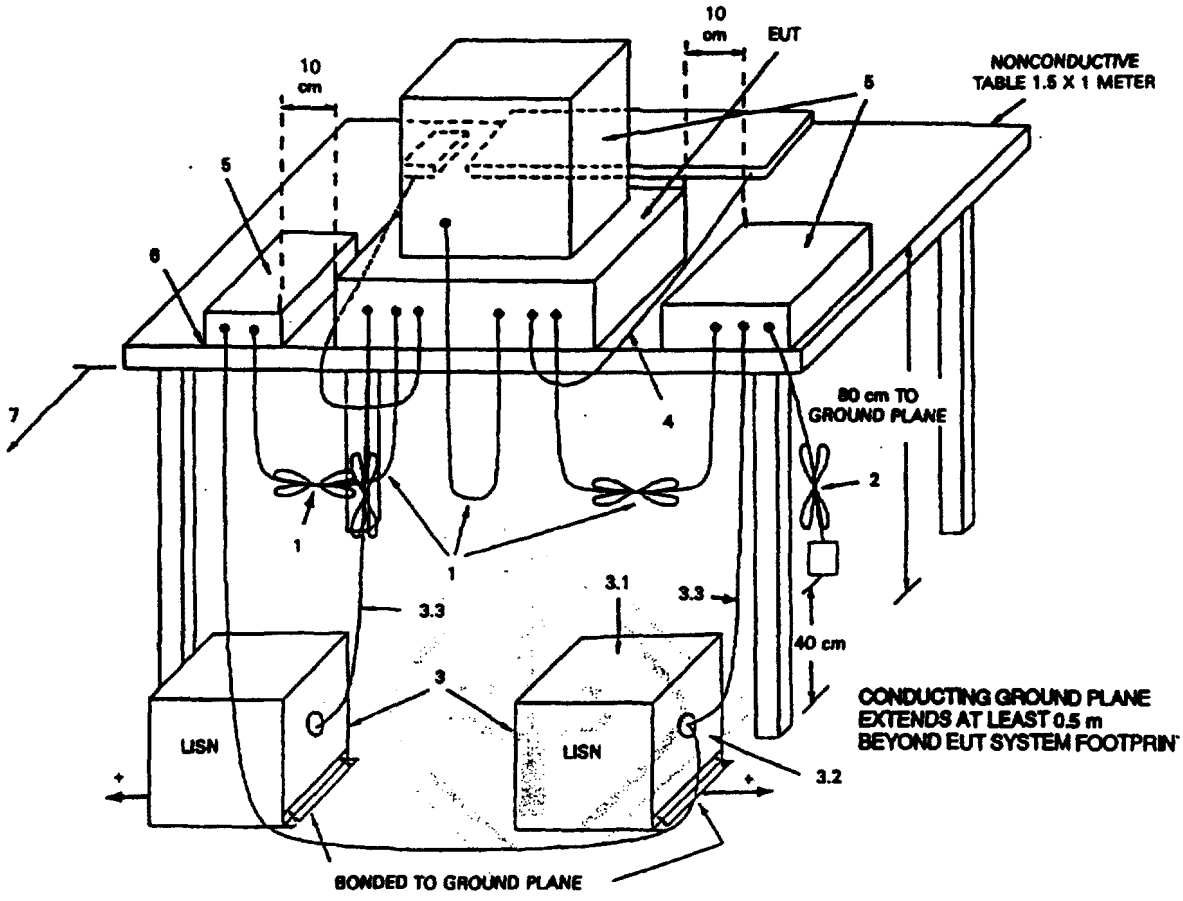
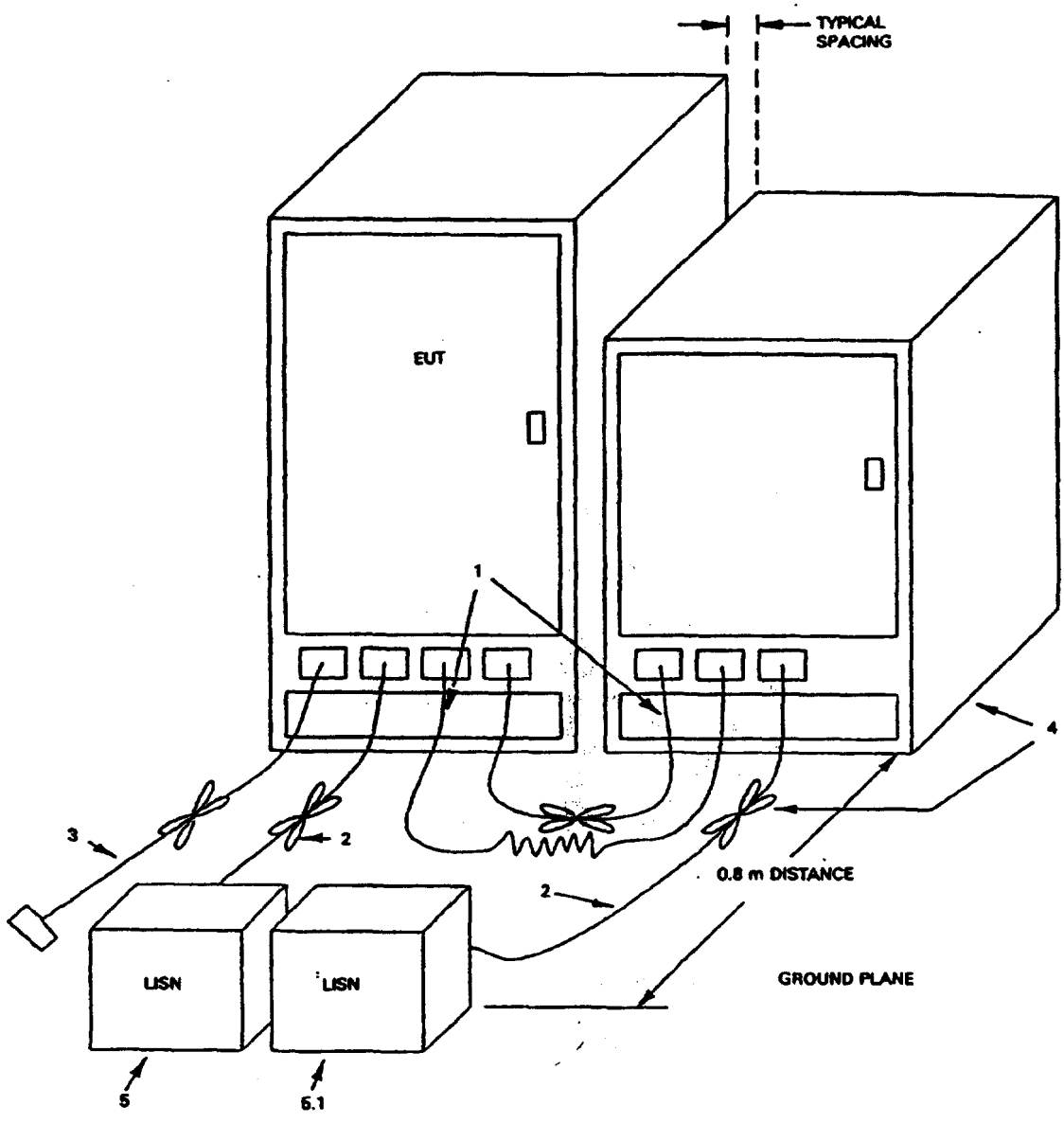


†LISNs may have to be moved to the side to meet 3.3 below.

LEGEND:

1. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth forming a bundle 30 to 40 cm long, hanging approximately in the middle between ground plane and table.
2. I/O cables that are connected to a peripheral shall be bundled in center. The end of the cable may be terminated if required using correct terminating impedance. The total length shall not exceed 1 m.
3. EUT connected to one LISN. Unused LISN connectors shall be terminated in 50 Ω. LISN can be placed on top of, or immediately beneath, ground plane.
   - 3.1 All other equipment powered from second LISN.
   - 3.2 Multiple outlet strip can be used for multiple power cords of non-EUT equipment.
   - 3.3 LISN at least 80 cm from nearest part of EUT chassis.
4. Cables of hand-operated devices, such as keyboards, mouses, etc., have to be placed as close as possible to the host.
5. Non-EUT components being tested.
6. Rear of EUT, including peripherals, shall be all aligned and flush with rear of tabletop.
7. Rear of tabletop shall be 40 cm removed from a vertical conducting plane that is bonded to the floor ground plane (see 5.2).

Figure 2. Test Configuration
Tabletop Equipment Conducted Emissions



LEGEND:

1. Excess I/O cables shall be bundled in center. If bundling is not possible, the cables shall be arranged in serpentine fashion. Bundling shall not exceed 40 cm in length.
2. Excess power cords shall be bundled in the center or shortened to appropriate length.
3. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated if required using correct terminating impedance. If bundling is not possible, the cable shall be arranged in serpentine fashion.
4. EUT and all cables shall be insulated from ground plane by 3 to 12 mm of insulating material.
5. EUT connected to one LISN. LISN can be placed on top of, or immediately beneath, ground plane.
   5.1 All other equipment powered from second LISN.

Figure 3. Test Configuration
Floor-Standing Equipment Conducted Emissions

B. Test Setup & Facilities for Measuring Radiated Emissions.

_____ 1. Is ambient level at least 6 dB below the specified limits for radiated emissions?

_____ 2. Are measurement readings taken a minimum of 16 azimuth angles spaced nominally at 22.5 degrees?

_____ 3. Is a turntable used for rotating the EUT through the 360 degree azimuth?

_____ 4. For Floor Standing EUT use; is the Turntable flush mounted, metal covered and flush with the ground plane?

_____ 5. Is a LISN used in the Radiated emission test setup for measuring conducted emissions?

_____ 6. If yes, then is the receptacle for the EUT power connection to the LISN bonded to the open area test site ground plane and located flush with the ground plane?

_____ 7. Has it been verified that the LISN does not cause inaccuracy in radiated emission measurements?

_____ 8. Are the LISNs located below the turntable?

_____ 9. Are measurements made at 3 meter distance between EUT and antenna?

_____ 10. Are measurements made at 10 meter distance between EUT and antenna?

_____ 11. Are measurements made at 30 meter distance between EUT and antenna?

_____ 12. Is the location of the instrument facility outside the ellipse (obstruction-free area) defined in Figure 4?

_____ 13. Is the terrain within the obstruction-free area smooth and flat?

_____ 14. Does the ground plane have gaps with linear dimensions less than 1/10 of a wavelength?

_____ 15. Is the ground plane connected to the surrounding earth?

_____ 16. If so, is the connection continuous and with ground rods?

_____ 17. Has ANSI C63.7 - 1992 "Guide for Construction of Open Area Test Sites for Performing Radiated Emission Measurements" been followed in building this radiated test site?

_____ 18. Has CISPR 16-1 1993, Annex L been followed in building this radiated test site?

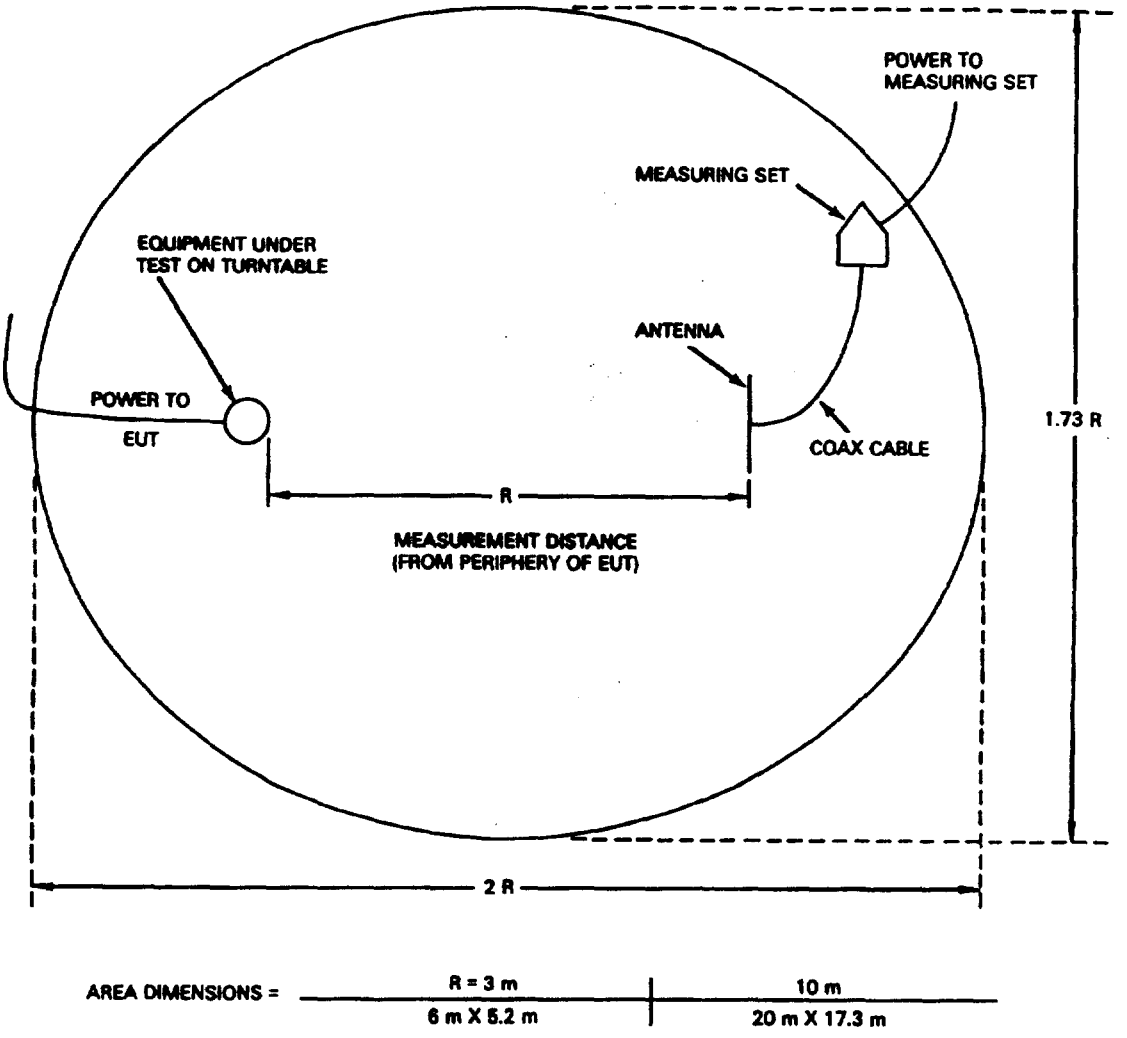


Figure 4. Radiated Emissions Measurement Obstruction-Free Area for Site with Turntable

_____ 19. Is the distance between the EUT and antenna measured from the closest periphery of the EUT to the center of the axis of the elements of the receiving antenna?

_____ 20. At any measurement distance is the antenna height varied from 1 to 4 meters?

_____ 21. If a monitor can be powered through an outlet on the host unit, then is conducted emission testing performed with the monitor powered through the host and with the monitor powered separately?

_____ 22. Is the antenna height being scanned in both the horizontal and vertical polarization?

_____ 23. Is an antenna positioner used?

_____ 24. Is the antenna positioner made of mostly nonconductive and nonreflecting materials?

_____ 25. Are there index marks on the antenna mast?

_____ 26. Is most everything on top of the ground plane nonconductive?

_____ 27. Are there index marks on the turntable or an electronic readout of position of the turntable?

_____ 28. Is the antenna clearance to the ground plane always a minimum of 25 cm?

_____ 29. Are the I/O connecting cables always at least 40 cm above the ground plane?

_____ 30. Is caution exercised by the tester to insure that small radiated emission lobes are properly detected in the 1 to 40 GHz frequency range?

_____ 31. Is the radiated emission test setup in accordance with Figure 5 for a Table Top EUT and Figure 6 for a Floor Standing EUT?

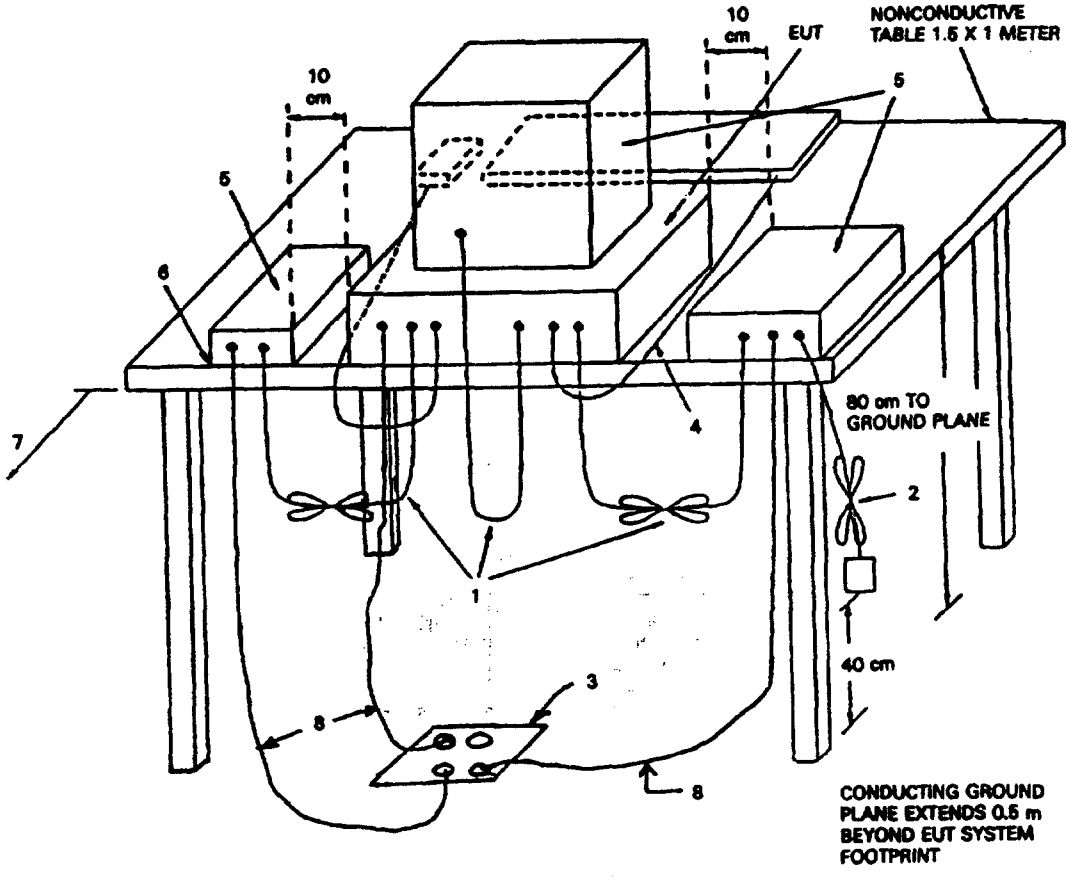
_____ 32. Is the Test Platform for a Table Top EUT 1 X 1.5 meters in size and raised 80 cm above the ground plane?

_____ 33. Is there available Site Attenuation data in the form of graphs and tables for both Horizontal and Vertical polarizations?

_____ 34. Is the Site Attenuation data less than 1 year old?

_____ 35. Does this Site Attenuation data show compliance of this open area test site to the theoretical Normalized Site Attenuation data within +/- 4 dB?

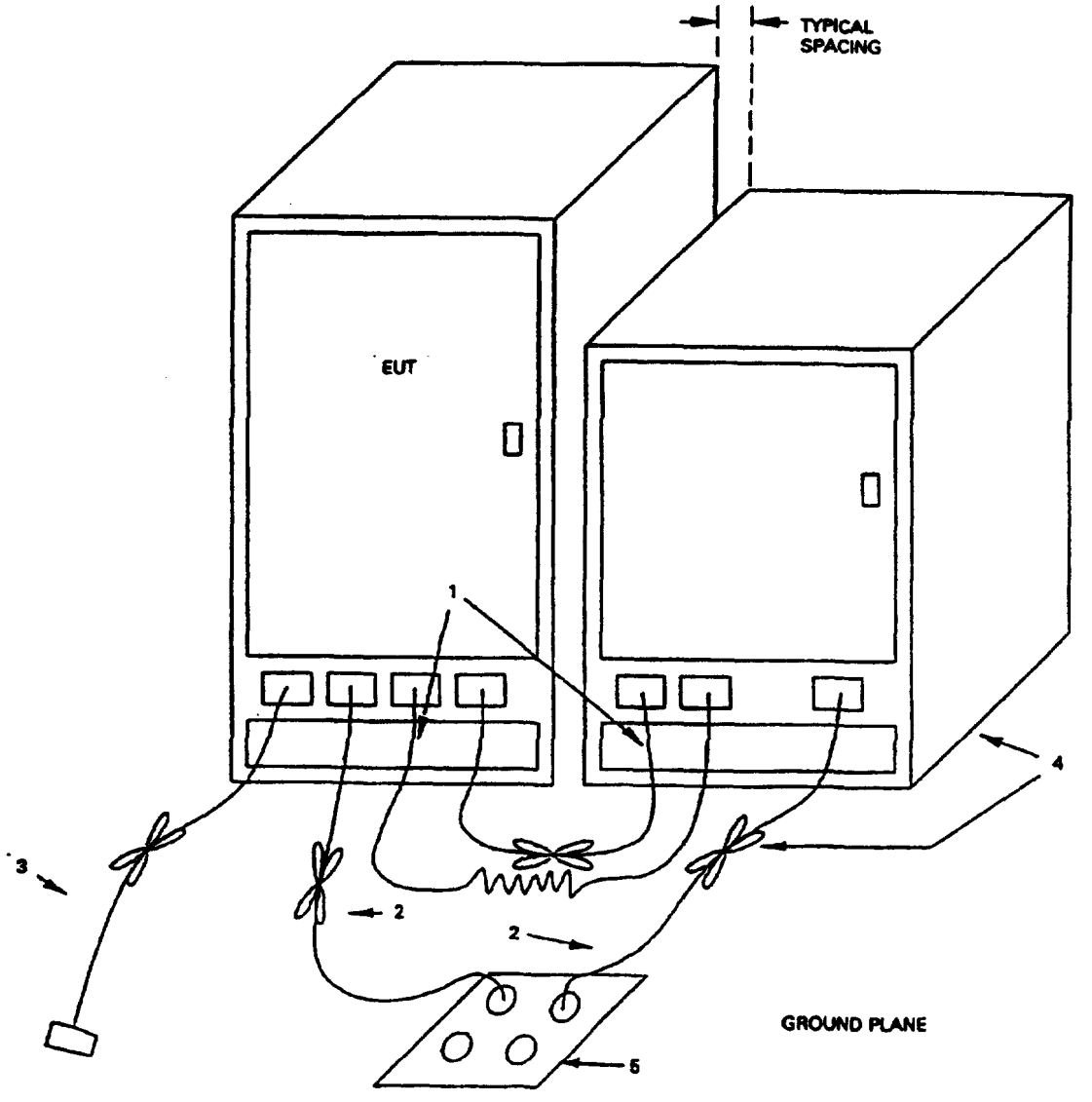
_____ 36. Are there unburied power and control cables present on the ground plane?



LEGEND:

1. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth forming a bundle 30 to 40 cm long, hanging approximately in the middle between ground plane and table.
2. I/O cables that are connected to a peripheral shall be bundled in center. The end of the cable may be terminated if required using correct terminating impedance. The total length shall not exceed 1 m.
3. If LISNs are kept in the test setup for radiated emissions, it is preferred that they be installed under the ground plane with the receptacle flush with the ground plane.
4. Cables of hand-operated devices, such as keyboards, mouses, etc., have to be placed as close as possible to the controller.
5. Non-EUT components of EUT system being tested.
6. The rear of all components of the system under test shall be located flush with the rear of the table.
7. No vertical conducting wall used.
8. Power cords drape to the floor and are routed over to receptacle.

Figure 5. Test Configuration
Tabletop Equipment Radiated Emissions



LEGEND:

1. Excess I/O cables shall be bundled in center. If bundling is not possible, the cables shall be arranged in serpentine fashion.
2. Excess power cords shall be bundled in the center or shortened to appropriate length.
3. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated if required using correct terminating impedance. If bundling is not possible, the cable shall be arranged in serpentine fashion.
4. EUT and all cables shall be insulated from ground plane by 3 to 12 mm of insulating material.
5. If LISNs are kept in the test setup for radiated emissions, it is preferred that they be installed under the ground plane with the receptacle flush with the ground plane.

Figure 6. Test Configuration
Floor-Standing Equipment Radiated Emissions

_____ 37. Has there been any changes made to this test site since the last site attenuation was measured and recorded?

_____ 38. Are broadband antennas used for final compliance measurements?

_____ 39. Are tunable dipole antennas used to check emission levels found to be within or over the FCC specified limit?

III. OPERATING CONDITION & CONFIGURATION OF EQUIPMENT UNDER TEST

A. Operating Conditions of the EUT.

_____ 1. Is the EUT operated at nominal voltage and frequency and typical load conditions?

_____ 2. Are all EUT ports connected to and terminated into a device of typical usage?

_____ 3. If there are multiple ports of the same type; is each port connected to an additional cable to investigate the additive effect these cables have on EUT emissions?

_____ 4. Is this additive effect less than 2 dB?

_____ 5. For a Table Top EUT are excess length cables bundled in the center in a serpentine fashion using 30 to 40 cm lengths to maintain 40 cm height above the ground plane?

_____ 6. Are all cables of hand operated devices (keyboards, mice, etc,) placed as close as possible to the host?

_____ 7. Are all peripherals aligned with the rear of the test platform?

_____ 8. Is the power cord of the EUT bundled?

_____ 9. Is the power cord of the non-EUT equipment bundled?

_____ 10. Is the EUT grounded in accordance with intended use?

_____ 11. Is the Table Top EUT centered laterally on the test platform and set flush with the rear of the test platform?

_____ 12. Are accessories placed in a typical configuration with one accessory on each side of the EUT with a 10 cm separation as in Figure 7?

_____ 13. Is the "H" pattern generated by a software program running on the EUT and that this program exercises all the peripherals?

_____ 14. Are cables manipulated to determine the maximum or near-maximum emission level within the constraints of Figures 9 and 11?

_____ 15. Is a Prescan area used for Radiated and/or Conducted emissions?

_____ 16. Is this Prescan area used for full evaluation of CPU speeds, Video modes, operational modes of the EUT, and cable maximization?

_____ 17. Is source substitution used to verify absolute emission level readings?

_____ 18. When using source substitution or direct measurement method of making emission readings; are all uncertainties of calibration accounted for and known?

IV. TEST REPORTS

A. Content of Test Reports.

_____ 1. Is the Standard to which the EUT was tested clearly referenced in the test report?

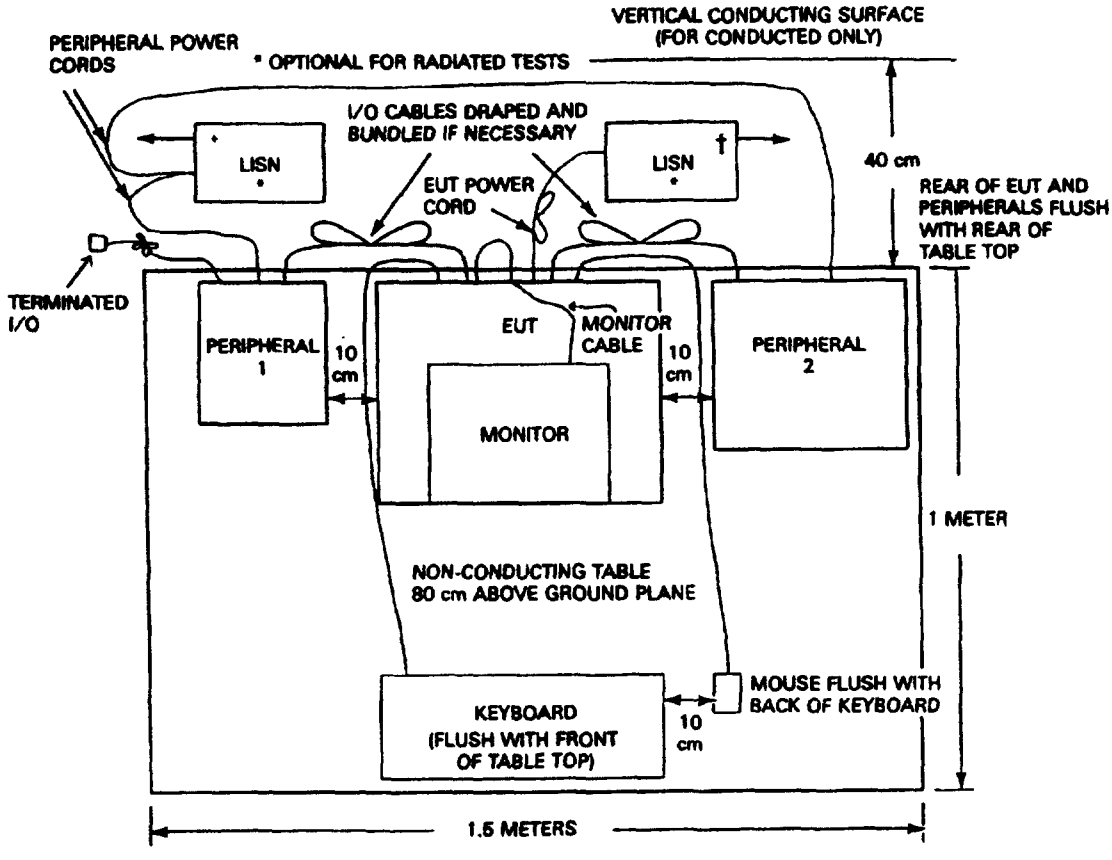
_____ 2. Is there a statement in the Test Report that the data in this report represents the worse case emissions?

_____ 3. Are all peripherals listed by manufacturer, model number, serial number and by FCC ID number?

_____ 4. Are all major subassemblies or internal peripherals listed by manufacturer, model number, serial number and by FCC ID number? Examples are hard drives, power supply, mother board, floppy drives, all internal circuit boards, etc.

_____ 5. Are there statements in the test report that completely describe the manufacture of the interconnecting cables? Detail should include shield type (braid or foil), how the shield is terminated and grounded (360 degree via metal backshells or drain wire).

_____ 5. Is a block diagram of the EUT test set up included in the test report?



†LISNs may have to be positioned to the side of the table to meet the criterion that the LISN receptacle must be 80 cm away from the rear of the EUT.

Figure 7. Test Configuration for Tabletop Equipment (Top View)

_____ 6. Are photographs of the EUT test set ups included in the test report?

_____ 7. Do these photographs should show maximized emission configuration for both radiated and conducted tests?

_____ 8. Is a complete list of test equipment included in the test report with manufacturer's model number, serial number, date of last calibration, and calibration interval?

_____ 9. Are measurement cable loss, instrumentation bandwidth, detector function, and antenna factors included where applicable?

_____ 10. Are proper units of measure used; i.e. dB(uV/m) for Radiated measurements and dB(uV) for Conducted measurements?

_____ 11. Is the location of the test site listed in the test report?

_____ 12. Is measurement data presented in tabular or graphical form in the test report?

_____ 13. Are there at least 6 Radiated and 6 Conducted emission levels listed in the test report?

_____ 14. For Conducted emission; is data listed for each power line, i.e. AC High and AC Neutral?

_____ 15. Is there a brief summary of test results showing the worse case Conducted and Radiated emissions by frequency, by corrected signal level, specification limit, polarization of antenna, height of antenna, which AC power line, etc?

_____ 16. Is there a statement in the test report describing the modifications required to Pass the limit?

_____ 17. Does the test report have signatures of the representative of the organization performing these tests?

_____ 18. Does the test report contain enough detail so that EUT testing can be replicated at another test lab?

_____ 19. Are the written test procedures for performing Conducted and Radiated emission testing included in the test report?

_____ 20. Are the Class A reports as detailed and exact as the Class B reports?

_____ 21. Does the report contain:

Frequency of emission
Antenna used, by type and serial number
Antenna height
Antenna distance to EUT
Antenna polarization
Index mark indicating degrees of rotation of turntable
Receiver attenuation
Meter reading
Corrected emission level
Date data was taken
Configuration of EUT

V. QUESTIONS FOR THE TEST OPERATOR

1. How are Radiated Prescans performed?

2. How does the test person determine if the emission if from the EUT or an ambient?

3. How does the test person handle an emission that is close to an ambient?

4. How does the test person determine that the test instrumentation is not in overload?

5. Is this test facility used for performing emission tests to ANSI C63.4 - 1992 for FCC Part 15?

6. Is this test facility used for performing emission tests to CISPR 22 - 1993?

7. Is the test operator aware that if the conducted emission level is at least 6 dB less in the Average Detector mode than in the Quasi-Peak mode; then the Quasi-Peak level may be reduced by 13 dB and then compared to the limit? If the reduced level is below the limit, then the EUT is considered to have Passed the limit.

8. Are coax cables, antennas, receiver or spectrum analyzer checked each morning for proper operation?

9. Is recalibration performed each time the test operator changes receiver frequency bands?

10. Is a graph generated each time a compliance test is performed to show the ambients?

11. Observe the test operator performing a Conducted emission scan.

12. Observe the test operator performing a Radiated emission scan.

13. Have test operator replicate three frequency points (60 MHz, 225 MHz and 750 MHz) on the Horizontal site attenuation and three frequency points (30 MHz, 95 MHz, and 160 MHz) on the Vertical site attenuation. Verify accuracy of these frequencies to previous recorded data.

ON-SITE CHECKLIST FOR FCC PART 15 - DIGITAL DEVICES

Instructions to the Assessor: Use this sheet to document comments and deficiencies. For each, identify the appropriate item number from the checklist. Identify comments with a "C" and deficiencies with an "X." If additional space is needed, make copies of this page (or use additional blank sheets).

Item No.	*Comments and/or Deficiencies*

NVLAP LAB CODE:

ON-SITE CHECKLIST FOR FCC PART 15 - DIGITAL DEVICES

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Item No.	*Comments and/or Deficiencies*

RECEIVED

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OFFICE OF SECRETARY

ET 95-19

NVLAP LAB CODE: [redacted]

National Voluntary Laboratory Accreditation Program (NVLAP)
for
Electromagnetic Compatibility and Telecommunications
47 CFR (FCC) Part 68 Compliance Testing

ON-SITE CHECKLIST

Abstract

This checklist is designed for use by a NVLAP Technical Expert(s) (TE) during the conduct of an on-site assessment for initial or renewal of accreditation for FCC Part 68 compliance testing. The checklist contains items from the NVLAP Program Handbook, NVLAP Procedures, Telecommunications Industry Association publication TSB31A, and technical references. The checklist is patterned after TSB31A.

The completed checklist becomes a part of the laboratory ON-SITE ASSESSMENT REPORT which is used in the evaluation of the laboratory for granting or renewal of accreditation. Deficiencies noted in this checklist must be resolved in accordance with the NVLAP Procedures. Comments not specified as deficiencies may be directed to the laboratory by the TE.

Laboratory Name _____

NVLAP Technical Expert(s) _____

On-Site Dates _____

Instructions to Laboratory

Respond in writing within 30 days of the date of this report, addressing all deficiencies documented by the assessor. Each deficiency must be referenced, in your response, by number as it is listed in the report.

This on-site assessment report conveys the opinion of the assessor as a single representative of NVLAP. The final evaluation of your laboratory for the purpose of recommending approval or denial of accreditation will be conducted by NIST evaluators who will review this report, the written information submitted by you, and results of any required proficiency testing. You must respond to this report by identifying the actions you have taken, or plan to take, to correct the deficiencies identified. Respond in detail so that an accurate evaluation can be completed. Failure to respond may delay an accreditation decision. Questions concerning this report should be directed to NVLAP.

The assessor has discussed the contents of this report with members of the laboratory management who agree to respond in writing to NIST, regarding resolution or correction of any deficiencies noted, within 30 days of the date of this report.

_____

Signature of Authorized Representative or designee | Printed Name | Date

FCC PART 68 CHECKLIST

1 PURPOSE

1.1 This checklist is designed for use by NVLAP Technical Expert(s) (TE) during the conduct of an on-site assessment for initial or renewal of accreditation for FCC Part 68 compliance testing. The checklist may contain items from the Program Handbook, NVLAP Procedures, and technical references.

The completed checklist becomes a part of the laboratory ON-SITE ASSESSMENT REPORT which is used in the evaluation of the laboratory for granting or renewal of accreditation. Deficiencies noted in this checklist must be resolved in accordance with the NVLAP Procedures. Comments not specified as deficiencies may be directed to the laboratory by the TE.

2 CHECKLIST ORGANIZATION

2.1 This checklist is patterned after the Test Requirements Matrix contained in the copyrighted TIA Telecommunications Systems Bulletin No. 31A (TSB31A), Part 68 Rationale and Measurement Guidelines, prepared by the EIA/TIA TR-41 Committee on Telephone Terminals.

2.2 The Matrix contained in Table 4.5-2 of TSB31A, covers sections 5 through 15 of that document and is reproduced herein by permission of the publisher. The checklist's section numbering scheme, beginning with section 5, tracks sequentially the sections of TSB31 as they are applicable.

2.3 In order to facilitate tracking, wherever the material of a section or subsection of the TIA document is listed in the matrix but is not included in this checklist, the corresponding section or subsection number of the checklist is identified with "intentionally left blank."

2.4 Within each section, individual checklist items are identified by lower case letters in alphabetical order. Space is left after each checklist item for the assessor's comments.

3 REFERENCE DOCUMENTS

3.1 Beyond the QA manual and other documentation required of all NVLAP accredited laboratories, a quality Part 68 lab should possess a copy of the latest issue of the following documents:

_____ a) FCC Part 68 - Connection of Terminal Equipment to the Telephone Network

_____ b) FCC Form 730 Application Guide - Registration of Telephone and Data Equipment. latest available version

_____ c) TIA TSB31A - Telecommunications Bulletin No. 31A - Part 68 Rationale and Measurement Guidelines

_____ d) UL1459 - Standard for Telephone Equipment

_____ e) IEEE 1027 - Standard Method for Measuring the Magnetic Field Intensity Around a Telephone Receiver

_____ f) UL 497A - Secondary Protection for Communication Circuits

_____ g) FCC Part 2 - Frequency Allocations and Radio Treaty Matters; General Rules and Regulations

_____ h) National Electrical Code

4 CONTINUING COMPLIANCE PROGRAM

4.1 Although it is the responsibility of the registrant to adhere to the FCC Part 68 Continuing Compliance Program, the engaging of an outside test facility for the initial Part 68 testing implies a degree of reliance upon, and therefore, responsibility on the part of the test lab for this function.

_____ a) Is the laboratory aware of the "six-month audit" requirements, i.e., the need to perform all of the applicable Part 68 test (other than environmental) on a current production line model every six months?

_____ b) Is the laboratory aware that if in the previous six months, the equipment has experienced environmentally-caused failures that the environmental tests must also be performed as part of the audit?

_____ c) Does the laboratory inform the client of the Continuing Compliance Requirements in its initial report?

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Table 4.5-2. Test Requirements Matrix

PART 68 REQUIREMENT	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
5. ENVIRONMENTAL SIMULATION 68.302																	
5.2 Vibration 68.302(a)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5.3 Temperature and Humidity 68.302(b)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5.4 Mechanical Shock 68.302(c)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5.5 Metallic Voltage Surge (800 V) 68.302(d)	X	X	X	X	X	X	X	X	X	X	X		X	X		X	X
5.6 Longitudinal Voltage Surge (1500 V) 68.302(e)(1) and (2)	X	X	X	X	X	X	X	X	X	X	X		X	X		X	X
5.7 Longitudinal Voltage Surge (2500 V) 68.302(e)(3) NOTE 1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
6. LEAKAGE CURRENT LIMITATIONS (ANALOG AND DIGITAL) 68.304 NOTE 2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
7. HAZARDOUS VOLTAGE LIMITATIONS 68.306																	
7.1 Message Register Leads 68.306(a)(1)									X								
7.2 Automatic Identified Outward Dialing Leads 68.306(a)(2)										X							
7.3 Transient Voltages, MR 68.306(a)(3)									X								
7.4 Transient Voltages, AIOD 68.306(a)(3)										X							
7.5 E&M Leads 68.306(a)(4) and (5)				X	X	X											
7.6 OPS Voltage 68.306(a)(6)							X										
7.7 LADC Current and Voltage 68.306(a)(7)								X									
7.8 Ringdown/Metallic Private Lines 68.306(a)(8)											X						
7.9 Physical Separation of Leads 68.306(b)(1)	X	X	X	X	X	X	X	X	X	X	X		X	X		X	X
7.10 Hazardous Voltage Protection 68.306(b)(2),(3),(4) and (c)	X	X	X	X	X	X	X	X	X	X	X		X	X		X	X
7.11 Ringing Source Limitations 68.306(d)							X										
8. SIGNAL POWER LIMITATIONS 68.308 NOTE 3																	
8.1 Voiceband Signal Power 68.308(b)(1)	X	X	X	X	X	X	X			X	X						
8.2 Voiceband Signal Power Limiting Circuits 68.308(b)(1)	X	X	X	X	X	X	X			X	X						
8.3 Voiceband Signal Power - Network Control Signals 68.308(b)(2)	X	X	X	X	X	X											
8.4 DC Conditions for Through Transmission (On Premise) 68.308(b)(3)(i)	X	X	X	X	X	X	X										
8.5 Data Equipment Connections For Through Transmission 68.308(b)(3)(ii)	X	X	X	X	X	X	X										
8.6 Voiceband Signal Power - Data 68.308(b)(4)	X	X	X	X	X	X	X										
8.7 Voiceband Signal Power - Data Protective Circuitry 68.308(b)(4)	X	X	X	X	X	X	X										
8.8 Through Transmission Amplification 68.308(b)(5)(i)(A)-(G)	X	X	X	X	X	X	X					X		X	X		X
8.9 Through Transmission - SF Cutoff 68.308(b)(5)(i)(H)	X	X	X	X	X	X	X					X		X	X		X
8.10 Through Transmission - SF/Guard Bands 68.308(b)(5)(ii)	X	X	X	X	X	X	X					X		X	X		X
8.11 Return Loss - Two Wire 68.308(b)(6)(i)				X	X	X											
8.12 Return Loss - Four Wire 68.308(b)(6)(ii) and (iii)				X	X	X											
8.13 Transducer Loss - Four Wire 68.308(b)(6)(ii) and (iii)				X	X	X											
8.14 DC Conditions for OPS Ports 68.308(b)(7)							X										
8.15 Signal Power 3995 Hz - 4005 Hz 68.308(c)	X	X	X	X	X	X	X										
8.16 Voiceband Longitudinal Voltage - 0.1 kHz to 4 kHz 68.308(d)	X	X	X	X	X	X	X			X	X						
8.17 NonLADC Metallic Voltage - 4 kHz to 6 MHz 68.308(e)(1)	X	X	X	X	X	X	X			X	X						
8.18 NonLADC Longitudinal Voltage - 4 kHz to 6 MHz 68.308(e)(2)	X	X	X	X	X	X	X			X	X						
8.19 LADC Metallic Voltage - 0.01 kHz to 6 MHz 68.308(f)(1) and (2)								X									
8.20 LADC Longitudinal Voltage - 0.01 kHz to 6 MHz 68.308(f)(3)								X									
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q

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Table 4.5-2 Test Requirements Matrix (cont'd)

PART 68 REQUIREMENT		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
9. LONGITUDINAL BALANCE LIMITATIONS 68.310																		
9.1 Analog		X	X	X				X				X						
9.2 Digital														X	X		X	X
10. ON HOOK IMPEDANCE LIMITATIONS 68.312																		
10.1 DC Resistance 68.312(b)(1)(i) and (ii)		X																
10.2 DC Current During Ringing 68.312(b)(1)(iii) and (c)(1)		X	X															
10.3 AC Impedance During Ringing 68.312(b)(1)(iv),(v) and (c)(2)		X	X															
10.4 REN Calculation 68.312(d)-(g)		X	X															
10.5 DID Signaling And OPS Ringing 68.312(h)				X				X										
10.6 Message Registration 68.312(i)										X								
10.7 Voice Band Private Lines 68.312(j)												X						
10.8 Make Busy 68.312(k)		X																
11. BILLING PROTECTION 68.314	NOTE 3																	
11.1 Call Duration for Data Protective Circuitry 68.314(a)(1)	NOTE 4	X	X	X	X	X	X					X						
11.2 Call Duration for Data Equipment 68.314(a)(2)		X	X	X	X	X	X					X						
11.3 On-hook Signal Requirements 68.314(b)		X	X	X	X	X	X					X						
11.4 Loop Current Requirements 68.314(c)		X	X															
11.5 Signaling Interference 68.314(d)		X	X	X								X						
11.6 AICD Operating Requirements 68.314(e)											X							
12. HEARING AID COMPATIBILITY 68.316	NOTE 5																	
13. DIGITAL TERMINAL EQUIPMENT	NOTE 6																	
13.1 Subrate Pulse Repetition Rate 68.308(h)(1)(i)	NOTE 7												X	X	X			
13.2 Subrate Pulse Template 68.308(h)(1)(ii)														X	X			
13.3 Subrate Average Power 68.308(h)(1)(iii)														X	X			
13.4 Subrate Encoded Analog Content 68.308(h)(1)(iv)	NOTE 8												X		X			
13.5 Subrate Signaling Interference 68.314(d)(2)													X		X			
13.6 Subrate On-Hook Level 68.314(f)													X		X			
13.7 1.544 Mb/s Pulse Repetition Rate 68.308(h)(2)(i)	NOTE 9															X	X	X
13.8 1.544 Mb/s Pulse Template 68.308(h)(2)(ii)																	X	X
13.9 1.544 Mb/s Output Power 68.308(h)(2)(iv)																	X	X
13.10 1.544 Mb/s Encoded Analog Content 68.308(h)(2)(v)	NOTE 10															X		X
13.11 1.544 Mb/s Signaling Interference 68.314(d)(2)																X		X
13.12 1.544 Mb/s On-Hook Level 68.314(f)																X		X
13.13 1.544 Mb/s Signaling Duration 68.314(g)																	X	X
13.14 1.544 Mb/s Minimum Pulse Density and Keep Alive 68.318(b)(1)																	X	X
14. MISCELLANEOUS																		
14.1 Limitations on Automatic Redialing 68.318(c)		X																
15. SIX AND EIGHT POSITION MINIATURE PLUGS AND JACKS 68.500	NOTE 9																	
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q

5 ENVIRONMENTAL SIMULATION

5.1 intentionally left blank

5.2 *Vibration*

_____ a) Do the Manufacturer's Specifications for the shaker table clearly indicate its Part 68 testing capabilities; i.e., accelerations of 0.5 g peak from 5 Hz to 100 Hz and 1.5 g peak for 100 Hz to 500 Hz, at sweep rates 0.1 and 0.25 octaves per min., respectively, when loaded with the EUT?

_____ b) Are vibration tests performed with the EUT fully packaged for shipment with normally accompanying accessories, documentation, etc.?

5.3 *Temperature & Humidity*

_____ a) Do the Manufacturer's Specifications for the temperature & humidity chamber clearly indicate its Part 68 testing capabilities; i.e., temperature range of -40°F (-40°C) to 150°F (65.6°C) and a humidity range of up to 95% relative humidity, with an accuracy of ±5°F (±3°C) and ±10% relative humidity?

5.4 *Mechanical Shock*

_____ a) Is an asphalt tile covered concrete surface available for the shock tests?

_____ b) Are shock tests performed unpackaged?

_____ c) Is mechanical drop equipment available for heavier than "portable" EUT?

_____ d) Are drop tests performed for each required orientation of the EUT?

_____ e) Does tester appreciate the required EUT weight vs. required test drop height relationships?

5.5, 5.6, and 5.7 *Surge Tests*

NOTE: The following checklist items apply to all three types of surges covered in sections 5.5, 5.6 and 5.7 below.

_____ a) Are photos of current waveforms on file?

_____ b) Is date of current waveform representations more recent than one year?

_____ c) Is surge generator capable of producing surges of both polarities for all three voltages, 800, 1500, and 2500 V?

_____ d) Is the surge generator's working state verified before each use or at least at the beginning of each test day?

5.5 *Metallic Voltage Surge (800 V)*

_____ a) Are the pulse characteristics as follows: open circuit voltage 800 volts peak; maximum rise time to crest 10 usec.; minimum decay time to half crest 560 usec.; peak current capability 100 Amps. minimum for all cases except simplexed pairs; and 200 Amps. minimum for simplexed pairs?

5.6 *Longitudinal Voltage Surge (1500 V)*

_____ a) Are the pulse characteristics as follows: open circuit voltage 1500 Volts peak; maximum rise time to crest 10 usec.; minimum decay time to half crest 160 usec.; and peak current capability 200 Amp. minimum?

5.7 *Longitudinal Voltage Surge (2500 V)*

_____ a) Are the pulse characteristics as follows: maximum rise time to crest 2 usec.; minimum decay time to half crest 10 usec.; and peak current capability 1000 Amp. minimum?

6 LEAKAGE CURRENT LIMITATIONS

_____ a) Is 60 Hz source capable of producing 1000 V and 1500 V and a current of at least 10 mA. peak?

_____ b) Is the voltage ramped up over a 30-second period and allowed to stay at the maximum voltage for an additional 60 seconds?

_____ c) When the EUT contains line relay contacts on the network side of the dielectric barrier, are provisions made to close these contacts, artificially, if necessary, without affecting the current path?

_____ d) For the 1500 V EUT to power line barrier test is the EUT's power switch turned on?

7 HAZARDOUS VOLTAGE LIMITATIONS

7.1 through 7.8

NOTE: The following checklist items refer to the availability of test equipment required for one or more of the types of EUT covered in TSB31 sections 7.1 through 7.8.

_____ a) Is a dc voltmeter with: an input impedance > 1 megohm; a range of 0-200 V; and an accuracy of ±3% available?

_____ b) Is a true rms ac voltmeter with: an input impedance > 100 kOhms; a frequency range of 1 kHz to at least 1 MHz; an input sensitivity of at least 35 mV or better (referenced to 135 Ohms); peak voltage and rms voltage indicating; and an accuracy of ±3% available?

_____ c) Is a digital sampling storage oscilloscope with: input impedance > 1 MOhm; frequency range > 6 MHz; input sensitivity of 3 mV or better; trigger sensitivity of at least 10mV or better; and an accuracy of ±3% available?

7.9 *Physical Separation of Leads*

_____ a) Is tester fully aware of the physical separation of network interface, power, and hazardous voltage lead requirements?

7.10 *Hazardous Voltage Protection*

_____ a) Is voltage source of 120 V rms 60 Hz with output current of 20 Amps. continuous and 50 Amps. for 1 minute capability available?

_____ b) Is voltage source of 300 V rms 60 Hz with output current of 20 Amps. continuous and 50 Amps. for 1 minute capability available?

_____ c) Are terminating resistors of 750, 1000, and 1500 Ohms in their proper voltage divider configuration available?

7.11 intentionally left blank

8 SIGNAL POWER LIMITATIONS

8.1 *Voiceband Signal Power*

_____ a) Is a true rms ac voltmeter with 3-second averaging capability used?

_____ b) Is a bandpass filter with: input impedance > 100 kOhms; bandpass 200 to 4 kHz (3 dB points); and out-of-band rolloff > 24 dB per octave used?

8.2 *Voiceband Signal Power Limiting Circuits*

_____ a) Are output signals measured at a minimum of five frequencies in the voice band?